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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,641	12/27/2001	Kenneth C. Creta	10559-638001/ P12350	9595

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FISH & RICHARDSON, PC  
12390 EL CAMINO REAL  
SAN DIEGO, CA 92130-2081

EXAMINER
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CHEN, ALAN S

ART UNIT	PAPER NUMBER
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2182

DATE MAILED: 04/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/034,641	Applicant(s) CRETA ET AL	
	Examiner Alan S Chen	Art Unit 2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2001.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 11-27 is/are pending in the application.
- 4a) Of the above claim(s) 7-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 11-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 7-10 are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-6 and 11-27, drawn to an invention, classified in class 710, subclass 53, pertaining to queue content modification.
  - II. Claims 7-10, drawn to an invention, classified in class 710, subclass 6 pertaining to I/O command processing, operation scheduling.
2. Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because group I involves a router that separates received concatenated transactions into different queues. The subcombination has separate utility such as reordering of transactions, not requiring buffering or buffering at transaction separation.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Mr. Bing Ai (Reg. No. 43,312) on 04/06/2005 a provisional election was made with traverse to prosecute the invention of group I, claims 1-6 and 11-27. Affirmation of this election must be made by applicant in replying to this Office action.

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Claims 7-10 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-6, 11-27 are rejected under 35 USC 103(a) as being unpatentable over US Pat. No. 6,754,751 to Willke.

7. As per claims 1, 11, 20 and 23, Willke discloses a computer chipset, apparatus and I/O hub (Fig. 2) comprising: a port (Fig. 2, element 228) configured to receive first and second ordered sequences of transactions from first and second devices, respectively (Fig. 2, element 202 and 204; Column 7, lines 25-40; also, Willke uses PCI architecture, Column 3, lines 33-67, which intrinsically and as admitted by applicant in his specification, involve ordered sequence transactions); an identifier adding component (Fig. 2, element 245 and Column 7, lines 25-40) adds a first sequence identifier (e.g., 01 code) to each transaction in the first sequence and a second sequence identifier (e.g., 00 code) to each transaction in the second sequence, and to combine the first and second ordered sequences of transactions with their respective identifiers into a third ordered sequence of transactions (Column 7, lines 35-40 where once the labels have been tagged, the fence “may evaporate and both the queues 202 and 204 may operate independently”; the identification allows separation of transaction, for instance going from Fig. 2, element 224 to be transferred to the correct queues in Fig. 2, element 202 and 204);

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Willke further discloses using the sequence IDs to determine which queue to put transaction in (Column 5, lines 15-25).

Willke does not disclose expressly a router being the element that separates the transactions based on the sequence identifiers.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a simple packet/command differentiation device such as a simple router/circuitry to separate transactions based on sequence identifier.

The suggestion/motivation for doing so would have been the need for any routing mechanism to decipher and route the transactions.

Therefore, it would have been obvious to use a simple router to route the transactions.

8. As per claims 2, 12, 22, 26 and 27, Willke discloses claims 1, 11, 21 and 23, further comprising an output port configured to send the transactions in the two ordered queues to a data bus (Fig. 2, element 230). Note that the arbiter (Fig. 2, element 245) as stated by Willke can control and operate the operations, methodologies and algorithms of the bridge, element 220, which intrinsically mean a form of execution unit is required, e.g., a processor.

9. As per claims 3 and 13-17, Willke discloses claims 1 and 11, which the first and second sequences are transactions from input/output device (Fig. 2, elements M1-M4 are memory I/O devices).

10. As per claims 4 and 6, Willke discloses claim 3, wherein the transactions are read and write transactions (Column 7, lines 1-10, MR and MW are memory read and writes).

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11. As per claims 5, 18, 19, 21, 24 and 25, Willke discloses claims 4, 20 and 23, wherein the sequences observe PCI ordering rules (Column 5, lines 10-15, PCI ordering rules and more relaxed rules used).

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to concatenating and separation of ordered transactions :

U.S. Pat. No. US006108741A to MacLaren et al.

U.S. Pat. No. US005930485A to Kelly et al.

U.S. Pat. No. US005805839A to Singhal

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan S Chen whose telephone number is 571-272-4143. The examiner can normally be reached on M-F 8:30am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A Gaffin can be reached on (571) 272-4146. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ASC  
4/8/2005

